

## CLAIMS

1. A coding method of an excitation vector waveform of a codebook divided into a plurality of channels capable  
5 of outputting a plurality of excitation vector waveforms, wherein said coding method associates an excitation vector waveform candidate of a predetermined channel with an excitation vector waveform candidate of another channel, and makes a code of an excitation vector waveform  
10 searched for by means of a predetermined algorithm a code of an excitation vector of a codebook.

2. The coding method according to claim 1, wherein an excitation vector waveform is searched for by means of  
15 a search algorithm of n-fold loops (where n is a number of channels) that changes an excitation vector waveform candidate within a loop in accordance with an excitation vector waveform candidate outside a loop.

20 3. The coding method according to claim 1, wherein a codebook is a stochastic codebook used in CELP.

4. The coding method according to claim 3, wherein a stochastic codebook is an algebraic codebook, and an  
25 excitation vector waveform candidate is represented by a pulse position.

5. The coding method according to claim 1, wherein an

excitation vector waveform candidate of a predetermined channel is associated by a multiplication operation result of a number representing an excitation vector waveform candidate of another channel.

5

6. The coding method according to claim 5, wherein a multiplication operation result is associated with an index of a pulse position candidate group indicating an excitation vector waveform candidate of a predetermined channel.

10

7. The coding method according to claim 5, wherein a multiplication operation result is associated with a pulse position indicating an excitation vector waveform candidate of a predetermined channel.

15

8. The coding method according to claim 6, wherein association is performed by addition of multiplication operation results.

20

9. A speech coding apparatus that codes an excitation vector of a codebook by means of the coding method according to claim 1.

25

10. A speech decoding apparatus that performs decoding of an excitation vector of a codebook corresponding to the coding method according to claim 1.